

Claims

1. A bottom watering-type plant cultivation device, comprising:

a flowerpot containing a cultivation material therein to set and cultivate a plant in the cultivation material, the flowerpot having a bottom part projected upward at a predetermined section thereof to a predetermined height to define a nutrient solution feed space under the bottom part of the flowerpot;

a refillable water vessel to contain a predetermined amount of water therein to supply the water into the flowerpot, the refillable water vessel being fitted coaxially around a lower portion of the flowerpot;

a nutrient solution guide removably installed in the nutrient solution feed space of the flowerpot, the nutrient solution guide defining therein a pair of nutrient solution-containing space parts which respectively contain therein different solid manures gradually dissolved, so as to guide predetermined amounts of nutrient solutions in desired directions;

a water absorbing unit engaging with the nutrient solution guide to regularly supply the water from the refillable water vessel to the solid manures in the nutrient solution-containing space parts; and

a root intercept unit provided between the nutrient solution guide and the bottom part of the flowerpot to prevent roots of the plant from infiltrating into the nutrient solution-containing space parts.

2. The bottom watering-type plant cultivation device according to claim 1, further comprising:

a hollow feed pipe mounted in the flowerpot to feed fresh water into the refillable water vessel, with a lower end of the feed pipe extending to a lower portion of the refillable water vessel, the feed pipe being opened at an upper end thereof to form a funnel-type shape, so as to prevent the fresh water from leaking from the feed pipe when the fresh water is fed into the refillable water vessel through the feed pipe; and

a water level indicator axially installed in the feed pipe to indicate a water level in the refillable water vessel to a caretaker.

3. The bottom watering-type plant cultivation device according to claim 5 2, wherein the water level indicator comprises:

a water level indicator body having a predetermined shape, with scales formed on an external surface of the water level indicator body along a longitudinal direction; and

10 a floating rod axially provided in the water level indicator body to rise or fall along the water level indicator body in response to the level of the water contained in the refillable water vessel.

4. The bottom watering-type plant cultivation device according to claim 2, the flowerpot comprises:

a casing having a cylindrical-type shape;

15 a cylindrical projection part formed by projecting a predetermined section of a bottom part of the casing upward to the predetermined height, the projection part having a curved surface at an upper end thereof to be concave;

a plurality of feed holes formed on the curved surface of the upper end of the projection part to supply the nutrient solutions to the plant set in the casing;

20 a ring-shaped spaced part defined between an internal surface of a sidewall of the casing and an external surface of a sidewall of the projection part;

a plurality of depressed air guide grooves arranged around the external surface of the casing at regular angular intervals to guide external air into the casing, the depressed air guide grooves being formed by depressing the sidewall 25 of the casing toward a central axis of the casing within a predetermined length along a longitudinal direction of the casing;

a plurality of air vent holes formed on each of the depressed air guide grooves to guide the external air into the casing, the air vent holes being arranged along a longitudinal direction of the depressed air guide groove, and being spaced

apart from each other at predetermined intervals;

a projection ring provided around an internal surface of the cylindrical projection part, such that the nutrient solution guide is coupled to the projection part in the nutrient solution feed space of the casing;

5 a stepped part provided on the external surface of a lower portion of the casing, so that the casing is supported on the refillable water vessel while the stepped part of the lower portion of the casing is fitted over the refillable water vessel; and

10 a passing hole formed on an upper end of the depressed air guide grooves to receive the hollow feed pipe which is longitudinally installed in the casing.

5. The bottom watering-type plant cultivation device according to claim 4, the depressed air guide groove is formed on the external surface of the casing, such that an upper portion of the depressed air guide groove is placed above the stepped part of the casing to be exposed to the outside when the lower portion of the casing is fitted over the refillable water vessel, so that an excessive part of the water is drained from the refillable water vessel through the exposed upper portion of the depressed air guide groove.

20 6. The bottom watering-type plant cultivation device according to claim 1, the nutrient solution guide comprises:

a guide frame comprising:

25 an annual groove provided around an external surface of the guide frame, so that the guide frame is inserted in the nutrient solution feed space by engaging the annual groove with a projection ring of a projection part of the flowerpot; and

30 a partition plate provided in the guide frame to partition an internal space of the guide frame into the pair of nutrient solution-containing space parts which respectively contain the different solid manures therein to supply the nutrient solutions into the flowerpot;

a depressed guide part provided on each of diametrically opposite parts of the external surface of the guide frame to be symmetric to each other, based on the partition plate of the guide frame, the depressed guide part being depressed to a predetermined depth to place the water absorbing unit over the guide frame; and
5 an extending guide part vertically extending downward from the depressed guide part, and bent at an end thereof, thus supporting a spare part of the water absorbing unit which is folded to form a plurality of layers.

7. The bottom watering-type plant cultivation device according to claim
10 6, the guide frame is made of a material selected from the group consisting of a soft resin, a hard resin and a high strength sponge, and the partition plate is curved at an upper end thereof to correspond to a curved surface of an upper end of the projection part of the flowerpot.

15 8. The bottom watering-type plant cultivation device according to claim 6, the nutrient solution-containing space parts contain therein at least one of perlite and peat moss which are contractive and have predetermined water absorption factors, respectively, in addition to the solid manures.

20 9. The bottom watering-type plant cultivation device according to claim 1, the cultivation material comprises a material selected from the group consisting of compost, garden mold, culture medium and pumice stone, thus suitably supplying the nutrient solutions to the plant.

25 10. The bottom watering-type plant cultivation device according to claim 1, the root intercept unit prevents the nutrient solutions which are dissolved from the solid manures in the nutrient solution guide, from being excessively supplied to the plant.

30 11. The bottom watering-type plant cultivation device according to claim

1, the different solid manures in the nutrient solution guide are contained in water absorbing packs, respectively, such that the solid manures are dissolved at predetermined rates in proportion to the amounts of water which are gradually supplied to the solid manures from the refillable water vessel.

5